

## NOTES RELATING TO THE FLORA OF BHUTAN: II

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ABSTRACT. Taxonomic and nomenclatural researches into the families Celastraceae, Leguminosae, Rosaceae and Asclepiadaceae have necessitated these notes which include the following new taxa and combinations: *Maytenus oxyphylla* Grierson & Long *nom. nov.*; *Indigofera exilis* Grierson & Long *sp. nov.*; *I. pseudoreticulata* Grierson & Long *sp. nov.*; *Butea buteiformis* (Voigt) Grierson & Long *comb. nov.*; *Sophora wightii* Baker *subsp. bhutanica* (Ohashi) Grierson & Long *comb. et stat. nov.*; *Entada pursaetha* DC. *subsp. sinohimalensis* Grierson & Long *subsp. nov.*; *Potentilla armerioides* (Hook. f.) Grierson & Long *comb. et stat. nov.*; *P. atrosanguinea* Lodd. *var. argyrophylla* (Lehm.) Grierson & Long *comb. nov.*; *Sibbaldia cuneata* [Hornem. ex] O. Kuntze *var. micrantha* (Hook. f.) Grierson & Long *comb. nov.* and *Hoya bhutanica* Grierson & Long *sp. nov.* Illustrations and notes on distinction, typification and geographical range are given where necessary.

### CELASTRACEAE

#### *Maytenus*

Following Ding Hou's conclusion (1962) regarding the amalgamation of *Gymnosporia* and *Maytenus*, the former must be considered a synonym of the latter. Raju and Babu (1969) transferred a number of the Indian species to *Maytenus* but did not deal with *G. acuminata* Laws. The epithet *acuminata* is already occupied in *Maytenus* for a tropical African species hence a new name is proposed. The simplest solution appears to be the resurrection of Wallich's original epithet *oxyphyllus* which was never validly published but was given in synonymy by Lawson.

#### *Maytenus oxyphylla* Grierson & Long *nom. nov.*

Syn.: *Gymnosporia acuminata* [Hook. f. ex] Laws. in Fl. Brit. Ind. 1:619 (1875), non *Maytenus acuminata* (L.f.) Loes.

*Celastrus oxyphyllus* Wall. Cat. 4312 (1831) *nom. nud.*

*Baeobotrys acuminata* Wall. Cat. 2321 (1830) *nom. nud.*

Lectotype: Khasia, Mamloo, 4-5000 ft., ix 1850, J. D. Hooker & T. Thomson s.n.\* (K., herb. Hook.)

In the original description of *G. acuminata*, Lawson included, as syntypes, plants from Sikkim, Khasia, Burma, Malaya and W China. The Sikkim element appears to differ somewhat from the Khasian plants in foliage and may represent a different taxon. The lectotype is selected from amongst the syntypes in the general herbarium at Kew to retain the name *oxyphylla* for the Khasian element in the same sense that Wallich originally intended.

\* All the specimens cited in this paper have been examined by the authors.

## LEGUMINOSAE

## Indigofera

**Indigofera cylindracea** and its allies in E Himalaya.

In the *Flora of British India* three species of this group were included by Baker: *I. cylindracea* [Wall. ex] Baker, *I. leptostachya* DC. and *I. gerardiana* [Wall. ex] Baker, which is a later synonym of *I. heterantha* [Wall. ex] Brandis. In a note at the end of the description of *I. leptostachya*, Baker noted that the type specimen was possibly a form of *I. pulchella* sensu Baker (= *I. cassioides* DC.) non Roxb. and this was later confirmed by Ali (1958). Since it does not occur in W Himalaya, *I. leptostachya* sensu Baker was not further considered by Ali and a new name is still required for it. To further complicate the issue, this taxon (which we here name *I. exilis*), *I. cylindracea* and *I. heterantha* have been confused with each other and with a fourth as yet undescribed species. This last we here name *I. pseudoreticulata*.

Table 1 and figs. 1 & 2 summarise the differences between the species in this group.

**Indigofera exilis** Grierson & Long *species nova*

Syn.: *I. leptostachya* sensu Baker in Fl. Brit. Ind. 2:100 (1876) non DC. (1825).

Ab *I. cylindracea* [Wall. ex] Baker caulibus erectioribus et altioribus, foliis subtus pallidis, bracteis lanceolatis mox caducis, dentibus calycis acutis latitudine aequilongis, leguminibus deflexo-patentibus, pedicellis brevioribus differt. Fig. 1A.

Frutex erectus usque ad 3 m altus, ramis gracilibus junioribus parce adpresse pubescentibus. Folia imparipinnata 7–14 cm longa; foliola opposita 7–11-juga elliptica, oblonga vel obovata 8–20 × 4–9 mm, tenuiter chartacea, ad apices ± obtusa, mucronulata, basim versus cuneata, discoloria, subtus pallida, venis leviter reticulatis sed non prominentibus, utrinque pilis albis minute adpresse pubescentia, parce vestita; petioluli 1–1.5 mm longi; stipellae subulatae c. 0.5 mm longae; stipulae subulatae 3–4 mm longae. Racemi exiles, axillares laxiflori 6–10 cm longi (usque ad 12 cm in fructo) flores in dimidio parte superiore gerentes; pedicelli 1–2 mm longi; bractee lanceolatae c. 1 mm longae mox deciduae. Tubus calycis c. 2 mm longus, dentibus late triangularibus c. 0.8 mm longis, extus densae brunneo-pubescentibus. Petala rosea 8–9 mm longa; vexillum ± oblongum extus puberulum; alae oblongae ad bases truncatae paene sine unguibus. Ovarium glabrum. Legumina linearia subteretia 2.5–3.5 cm × 2–2.5 mm, deflexo-patentia. Semina 6–8 ellipsoidea, c. 2 mm longa.

SIKKIM: Lachen and Lachung, 6–8000 ft, "frutex 10 pedalis", J. D. Hooker s.n. (holo. K; iso. K).

NEPAL: without locality, Wallich, Wall. Cat. 5479a p.p. (BM); between Thare and Bhagu, 2100 m, Polunin 90 (BM); Ankhu Khola, Sertung, 2100 m, Stainton 7378 (BM); Malkabang, 2070 m, Stainton, Sykes & Williams 2865 (E, BM); Ghasa, Kali Gandaki valley, 2100 m, S.S.W. 5480 (E, BM); Wabak Khola, 2100 m, Beer 9510 (BM); Dalun, 2300 m, Dobremez 2358 (BM); Gram-Dunche, 1900–2000 m, Hara et al 721746 (E, BM);

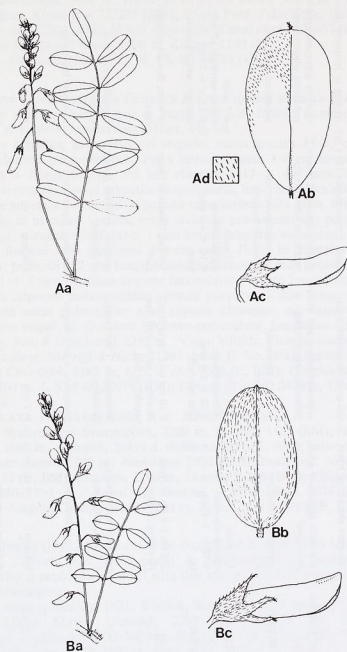


FIG. 2. A, *Indigofera cylindracea* (McCosh 231); B, *I. heterantha* (Grierson & Long 104). a, raceme and subtending leaf,  $\times 1$ ; b, leaflet,  $\times 4$ ; c, flower bud,  $\times 5$ ; d, leaf indumentum,  $\times 8$ . (Fig. 1 is on p. 347).

TABLE 1

	<i>I. heterantha</i>	<i>I. exilis</i>	<i>I. cylindracea</i>	<i>I. pseudoreticulata</i>
Habit	tall erect shrubs (to 3 m)	tall erect shrubs (to 3 m)	small ± erect shrubs (to 1 m)	trailing or prostrate shrubs
Indumentum, of branches	± densely appressed white pubescent	appressed brown and white pubescent when young	sparsely appressed brown pubescent when young	sparsely appressed brown pubescent when young
" , of leaves	appressed pubescent	minutely appressed pubescent	appressed pubescent especially beneath	appressed pubescent
Leaflet number	1-3 pairs	7-11 pairs	5-7 pairs	4-7 pairs
" shape	oblong-obovate	oblong-obovate	elliptic-oblong	broad-narrowly elliptic
" size	5-10 × 3-4 mm	8-20 × 4-9 mm	9-16 × 4-8 mm	6-13 × 4-7 mm
" reticulation	nil	faint beneath	faint	distinct, whitish above
Racemes	2-3 cm (-6 cm in fruit) flowering to base	6-10 cm (-12 cm in fruit), flowers in upper half, lax slender in bud	5-8 cm, flowers in upper half	4-9 cm, flowers in upper half
Bracts	narrowly lanceolate c. 1.5 mm, caducous	lanceolate c. 1 mm, early caducous	subulate, c. 2 mm falling at anthesis	lanceolate c. 1 mm, caducous
Calyx teeth	narrowly lanceolate	triangular, ± as broad as long	narrowly lanceolate	narrowly lanceolate
Petals	5-6 mm	6-7 mm	8-9 mm	8-9 mm
Pods	deflexed-spreading, appressed pubescent	± spreading, glabrous	± erect, glabrous	?, hairy when young
Fruiting pedicels	c. 2 mm, stout	2-3 mm, stout	8-10 mm, slender	?

Tapejung-Garhi Danra, *Hara et al* 6301634 (BM); Garhi Danra-Tuwa, *Hara et al* 6301635 (BM); Batasay-Bhuspate Danra, *Hara et al* 6301640 (BM); Dunche-Gosainkund, 2065-3000 m, *Hara et al* s.n. (BM); Nagar Kot, Kathmandu, 2000 m, *Kanai et al* 25220 (BM); Sim Chotala-Gram, 900-1900 m, *Kanai et al* 727255 (BM); Dhara Pani-Teku Nala, 1000-800 m, *Kanai et al* 727260 (BM); Helok-Iladunda, *Kanai et al* 6301637 (BM).  
 BHUTAN: Chukka, Timpu, 1400 m, *Cooper* 1190 (E).  
 KHASIA: Shillong, 1524 m, *C. B. Clarke* 44583 (K).

**Indigofera pseudoreticulata** Grierson & Long *species nova* ab *I. reticulata* Franchet caulibus longioribus et magis diffusis, foliolis numerosioribus, racemis et floribus longioribus differt. Fig 1B.

Frutex diffusus, prostratus vel serpens, ramis gracilis 45-75 cm longis parce adpresse pubescentibus. Folia imparipinnata 3-6 cm longa; foliola opposita 4-7-juga anguste vel late elliptica 6-13 × 4-7 mm chartacea, apicem versus obtusa vel subacuta mucronulata, basi rotundata vel cuneata, utrinque adpresse pubescentia, paginis superioribus pilis albis, inferioribus pilis albis et brunneis vestitis, venis utrinque prominentibus; petioluli c. 1 mm longi; stipellae subulatae c. 1 mm longae; stipulae subulatae c. 2.5 mm longae. Racemi folia longiores 4-9 cm longi, flores in dimidio superiore gerentes; pedicelli c. 2 mm longi; bracteae lanceolatae mox deciduae. Tubus calycis 1-1.5 mm dentibus anguste lanceolatis 1.5 mm longis, extus dense brunneis adpresse pubescentibus. Petala purpurea 8 mm longa; vexillum obovatum extus puberulum; alae anguste oblongae, ad bases truncatae paene sine unguibus. Ovarium brunneo-puberulum. Legumina ignota.  
 BHUTAN: Julu & Denchung, 2285 m, "Open hillside. Flowers mauve", 5 viii 1959, *Ludlow, Sherriff & Hicks* 21393 (holo. E; iso. BM); between Trashiling and Chendebe, 2283 m, *L.S. & H.* 17068 (E, BM); Denchung, Khoma Chu, 2100 m, *L.S. & H.* 20871 (BM); Dotena, Timpu, 2400 m, *Cooper* 3301 (E, BM).

E HIMALAYA: (? Sikkim) Reda, *J. C. White* 292 (K).

NEPAL: Syabrubensi-Syarpagoan, 2300 m, *Polunin* 1387 (BM); nr Takum-sibang, 1980 m, *Stainton, Sykes & Williams* 4231 (E, BM); between Bhagu and Syabrubensi, 1700 m, *Nicholson* 2526 (BM); Pongsing, 3650 m, *Lall Dhwoj* 72 (E, BM); Markhu, 2100 m, *Sharma* E 146 (BM); Kilojet-Yatumbal, 2250-2700 m, *Kanai & Shakyas* 672117 (BM), 676165 (BM); Dunche-Singum Gompa, 1900-3200 m, *Kanai et al* 721791 (E, BM).

**I. cylindracea** (Fig. 2A) can easily be recognised in fruit by its long slender fruiting pedicels and erect pods; *I. heterantha* var *longipedicellata* Thothathri is probably identical with this species. The following specimens are representative:

NEPAL: without locality, 1821, *Wallich*, Wall. Cat. 5482 (holo. K; iso. K-W, BM); Likhu Khola, Gumdol, 2285 m, *McCosh* 231 (E, BM); Godavari-Phulchoki, 2700-3000 m, *Hara et al.* 70000 (E, BM); Phulchoki, S of Kathmandu, 2200-2700 m, *Hara et al.* 727248 (E, BM).

DARJEELING: Phalut-Raman, 3600-2400 m, *Kanai et al* 727257 (E, BM).

BHUTAN: Chapcha, 2438 m, *R. E. Cooper* 1329 (E, BM); Phajudin, Timpu, 2743 m, *R. E. Cooper* 2647 (E, BM).

**I. heterantha** in the Himalayan region is a rather variable taxon but can be recognised by its erect habit (1–3 m tall), racemes somewhat longer than the leaves bearing flowers throughout their length, and sparsely white-hairy pods (Fig. 2B). The lectotype, selected by Ali (1958), Wall. Cat. 5480 a (K, E) from Kumaon, has densely white appressed pubescent leaves each with 5–6 pairs leaflets. Plants from other areas of W Nepal, *Stainton* 6315 (E) have more numerous leaflets (7–11 pairs). In Bhutan, the commonest form differs in having consistently fewer leaflets (2–3 pairs) and has sometimes been named as *I. pseudotinctoria* Matsum.; the following specimens are representative: Paro, 2400 m, *Ludlow & Sherriff* 154 (E, BM); Thimphu, 2300 m, *L & S* 181 (E, BM); *ibid.*, *Grierson & Long* 104 (E). Further detailed studies of *I. heterantha* in the Indo-Chinese region are necessary.

### Butea

**Butea buteiformis** (Voigt) Grierson & Long **comb. nov.**

Basionym: *Meizotropis buteiformis* [*buteaeformis*] Voigt, Hort. Suburb. Calcutta 239 (1845); Griffith [sphalm. *Megalotropis*] Notulae Pl. As. 4:441–443 (1854). Syntypes: Hort. Serampore, *Griffith* (lecto. K, Herb. Benth.); Bengala, *Griffith* K.D. 1679 (K).

Syn.: *B. minor* Ham. in Wall. Cat. 5439 (1832) [*nom. nud.*] ex Baker in Hook. f., Fl. Brit. Ind. 2:195 (1876). Type: Nepal: *Hamilton* in Wall. Cat. 5439 (K, Herb. Hook.).

The Bengal syntype represents the fruiting plant collected in the wild by Griffith in the Jaintia Hills in 1837. Seeds of this were sent to Voigt and cultivated at the Saharanpur (Serampore) Garden and the lectotype selected by us is part of this cultivated stock. Griffith's description, although it appeared later, is a fuller one than Voigt's and the fact that the same material was used by Griffith is recorded in the following note by Prain which is pinned to both specimens. "This specimen is part of the material from which the description of *Megalotropis buteiformis* Voigt was prepared by Griffith, Notulae iv, p. 441. '*Megalotropis*' is a mere *lapsus calami* on Griffith's part, or more probably, a mistake of the editor for *Meizotropis* (see Voigt, Hort. Suburb. Calcutt. p. 239). D. P. 14.x.08."

### Sophora

Typification of ***Sophora benthamii*** and the status of ***S. bhutanica***.

*S. benthamii* was proposed by van Steenis (1948) as a new name for *S. acuminata* [Benth. ex] Baker in Hooker (1876–9) *hom. illeg.* non Desv. In the protologue of the latter, Baker mistakenly included the nomen nudum *Ormosia acuminata* Wall. Cat. 5937. We could find no specimen bearing this number in the general herbarium at Kew, but in Wallich's herbarium, 5937 is indeed labelled "*Ormosia acuminata*" and is a member of that genus (probably *O. fordiana* Oliv.) and not the *Sophora* described by Baker. Hence Wall. Cat. 5973 cannot be considered as a type but the other specimens alluded to by Baker must all be treated as syntypes, at least one of which (Bhotan, *Griffith*) is identifiable with *S. bhutanica* Ohashi. In

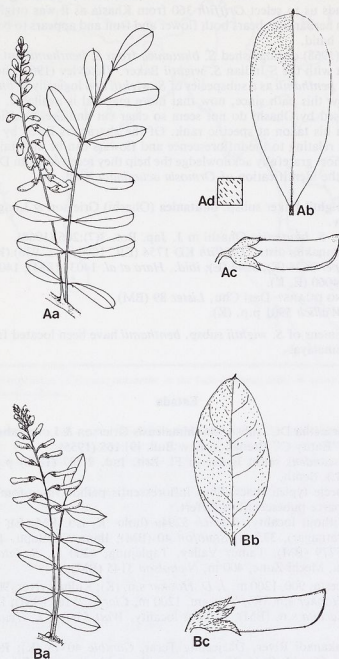


FIG. 1. A, *Indigofera exilis* (Stainton, Sykes & Williams 2865); B, *I. pseudoreticulata* (Ludlow, Sherriff & Hicks 17068). a, raceme and subtending leaf,  $\times 1$ ; b, leaflet,  $\times 3$ ; c, flower bud,  $\times 5$ ; d, leaf indumentum,  $\times 6$ .



order to preserve current usage of the name for the Khasian element a lectotype for *S. benthamii* must be chosen. A study of the remaining syntypes at Kew leads us to select *Griffith* 360 from Khasia as it was originally in Bentham's herbarium, bears both flower and fruit and appears to be named in Baker's hand.

Ohashi (1968) distinguished *S. bhutanica* from *S. benthamii* but did not compare it with the S Indian *S. wightii* Baker. Yakovlev (1967), however, reduced *S. benthamii* as a subspecies of *S. wightii* and logically *S. bhutanica* must follow this path since, now that more material is available, the differences used by Ohashi do not seem so clear cut and are insufficient to distinguish his taxon at specific rank. Of the characters listed by Ohashi only those relating to the inflorescence and flowers can be maintained.

The authors gratefully acknowledge the help they received from Dr R. M. Polhill in the identification of *Ormosia acuminata* Wall.

***Sophora wightii* Baker subsp. *bhutanica* (Ohashi) Grierson & Long comb. et stat. nov.**

Basionym: *S. bhutanica* Ohashi in J. Jap. Bot. 3(7):206 (1968).

BHUTAN: Punakha distr., *Griffith* KD 1754 (EIC 1890, Itin. 936) (K, BM); *ibid.*, *Cooper* 2624 (E), 3944 (E); *ibid.*, *Hara et al.* 14037 (BM), 14059 (iso. BM, K); 14060 (E, K).

DARJEELING DUARS?: Dari Chu, *Lister* 89 (BM).

NEPAL: *Wallich* 5901 p.p. (K).

No specimens of *S. wightii* subsp. *benthamii* have been located from the Eastern Himalaya.

## Entada

***Entada pursaetha* DC. subsp. *sinohimalensis* Grierson & Long subsp. nov.**  
Syn.: *E.* "Entity C" Brenan in Kew Bull. [9]:165 (1955).

*E. scandens* sensu Baker in Fl. Brit. Ind. 2:287 (1878) p.p. non (L). Benth.

A subspecies typica rhachidibus inflorescentis pallide fusco-tomentosis, calycibus parce pubescentibus differt.

NEPAL: Without locality, *Wallich* 5294a (holo. K; iso. BM, E); Dharan Bazar (Biratnagar), 375 m, *Stainton* 40 (BM); Ilam, Chintapu, 1670 m, *Stainton* 5779 (BM); Tamur Valley, Taplejung, 1200 m, *Stainton* 5855 (BM); Ilam, Mechi Zone, 400 m, *Nicholson* 3145 (BM).

SIKKIM: Teesta, 900–1200 m, *J. D. Hooker* s.n. (K); Kulhait river, 900–1200 m, *J. D. Hooker* s.n. (K); Yoksam, 1200 m, *Clarke* 25163 (BM); Dentam, 1300 m, *Lacaita* s.n. (BM); without locality, *Watt* 5546 (E), *Treutler* s.n. (K).

INDIA: Makanadi River, Darjeeling Terai, *Gamble* 4071a (K); Ringnoo, Darjeeling, *Gamble* 9554 (K); Assam, without locality, *Griffith* s.n. (K), *Jenkins* s.n. (E, K); Manipur, Paishing, *Watt* 6726 (E, K).

BANGLADESH: Sylhet, *Wallich* 5294b (K, BM); Sylhet Station, *Clarke* 8408 (K, BM).

CHINA: Yunnan, Szemao, 1350 m, *Henry* 13008 (K).



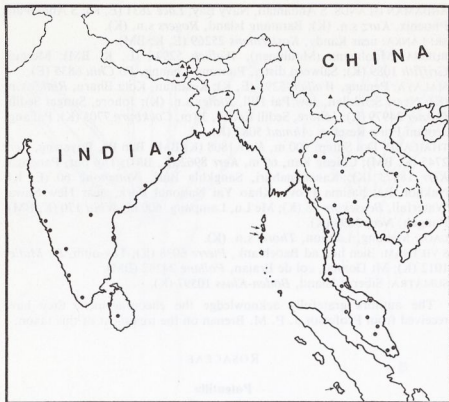


FIG. 3. Distribution of *Entada pursaetha* in the Indo-Malayan area. ● subsp. *pursaetha*; ▲ subsp. *sinohimalensis*.

Brenan (*op. cit.*, pp. 161-170) disentangled the nomenclature of the African and Asian *Entadas* and recognised four Asiatic entities, three of which were identifiable as previously described species, the fourth he left as "Entity C". The close affinity of the latter to *E. pursaetha* was recognised, the only difference being the indumentum of the inflorescence and calyx. The typical subspecies is widely distributed throughout the Old World tropics as far as Northern Australia and, in the Indo-Malayan area, it is restricted to the southern more tropical regions (see fig. 3). The two taxa thus appear to be geographically isolated, hence we believe that subspecific rank is appropriate. The following specimens are representative of *E. pursaetha* subsp. *pursaetha* in the Indo-Malayan area:

INDIA: N Kanara, Castle Rock, *Irani* 1880 (K); Kumta-Sirsi Road, *Fernandez* 198 (K); Khandala, Echo Point, *Santapau* 2266 (K); Khandala, Forbay, *Santapau* 4098 (K); Khandala, Meroli Plateau, *McCann* 1908 (K); Wynad, *Beddome* s.n. (BM); Mangalore, *Hohenacker* 432 (BM); Mysore, Hassan distr., Shiradi Ghat, *Saldanha* 12840 (K), 12964 (E); Courtallum, *Wight* s.n. (E); Madras, Kurnool distr., Mantiala Kanama, 600 m, *Gamble* 18720 (K); Madras, Vizagapatam, 1000 m, *Lawkington* s.n. (K); Puri Distr., Bonkuli Forest, *Haines* 4713 (K); Singhbhum, Samta Forest, *Haines* 4714 (K).

ANDAMAN ISLANDS: S Andaman, Navy Bay, *Lace* 2831 (E, K); S Andaman, Phoenix, *Kurz* s.n. (K); Baratang Island, *Rogers* s.n. (K).

SRI LANKA: near Kandy, *Kostermans* 25269 (E, K, BM).

BURMA: Moolmyna (Moulmien), *Wallich* 5294d (E, K, BM); Mergui, *Griffith* 1089 (K); Salween distr., Pantung Chaung, *Po Chiu* 6835 (E).

MALAYA: Penang, *Wallich* 5293 (E, K); Kelantan, Kota Bharu, *Ridley* s.n. (K); Negri Sembilan, Jaw Pai Hill, *Ridley* s.n. (K); Johore, Sungai Sedili, *Corner* 24979 (K); Johore, Sedili Kechil, 30 m, *Cockburn* 7705 (K); Pahang, Jemani Pong Reserve, *Ahmad* 5083 (K).

THAILAND: Doi Sutep, 900 m, *Kerr* 1808 (K, BM); Ban Pe, Rayawng, *Kerr* 2745 (K, BM); Chieng Kan, 60 m, *Kerr* 8962 (K, BM); Tap-put, Pangnga, *Kerr* 18373 (K); Kanchanaburi, Sangkhla Buri, *Nimanong* 60 (E, K); Nakhon Ratchasima Prov., Khao Yai National Park, near Hew Suwat Waterfall, *Beusekom* 25 (K); Me Lu, Lampang, 600 m, *Winit* 170 (K, BM); Pungah, *Neer* 3898 (K).

LAOS: Mekong, Lakhon, *Thorel* s.n. (K).

S VIETNAM: Bien hoa ad Baoehiank, *Pierre* 6038 (K); Tay-ninh, *H. Muller* 1012 (K); Mt Donnai, col de Braian, *Poilane* 24282 (BM).

SUMATRA: Siberut Island, *Boden-Kloss* 10597 (K).

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## ROSACEAE

### *Potentilla*

***Potentilla armerioides* (Hook. f.) Grierson & Long comb. et stat. nov.**

Basionym: *P. fruticosa* L. var. *armerioides* Hook. f., Fl. Brit. Ind. 2:348 (1878).

Syn.: *P. biflora* Schlecht. var. *armerioides* (Hook. f.) Hand.-Mazz. in Acta Hort. Gotob. 13:302 (1940).

*P. articulata* sensu Fletcher in Notes R.B.G. Edinb. 20:208 (1949) p.p.

Dwarf perennial forming tight cushions 5–7 cm tall; root-stocks woody; stems densely covered with leaf remains. Leaves 3-foliate; leaflets narrowly elliptic 5–10 × 1–1.5 mm, apex and base acuminate, ± glabrous above, densely hairy beneath, margins strongly revolute; petioles 8–12 mm, stipules wing-like adnate to petiole along most of their length c. 1 mm broad, excurrent in two 2–3 mm points. Flowers solitary, sessile or on peduncles up to 12 mm. Corolla yellow; limb 12–14 mm diam. Receptacle densely white-hairy. Achenes obovoid, glabrous, c. 0.75 mm.

SIKKIM: Borders of Sikkim and Tibet, Kimhin [?], 17000 ft, 14 ix 1849, *J. D. Hooker* s.n. (holo. K; iso. BM, E); nr Natu La, *Younghusband* 180 (K); Chortenima La, 5000 m, *Smith & Cave* 2330 (K).

CENTRAL TIBET: Hills S of Lhasa, 4900 m, *Ludlow & Sherriff* 8792 (E); Reting, 60 miles N of Lhasa, 4400–4600 m, *Ludlow & Sherriff* 8960 (E), 11046 (E).

EAST TIBET: Mekong–Salween divide, Ka-gwr-pu, Lat. 28° 25' N, 4600 m, *Forrest* 14388 (E); *ibid.*, *Ward* 960 (E).

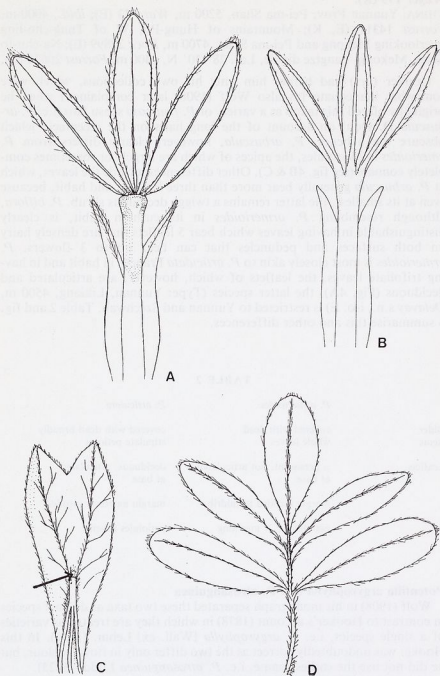


FIG. 4. Leaves and stipules of *Potentilla* species: A, *P. articulata*; B, *P. armerioides*; C & D, *P. arbuscula* (the arrow indicates point at which the leaf has been detached from the stipular base). All  $\times 5$ .

SOUTH TIBET: Doya La between Cho Dzong and Kharta Shika, 5175 m, Wager 199 (K).

CHINA: Yunnan Prov, Pei-ma Shan, 5200 m, Ward 33 (E); *ibid.*, 4000 m, Forrest 14311 (E, K); Mountains of Hung-Po, W of Tung-chu-ling overlooking Mekong and Pei-ma Shan, 4700 m, Rock 22899 (E); Na-chu-to Shan, Mekong-Yangtze divide, Lat. 28° 30' N, 4400 m, Forrest 20622 (E).

Hooker (*l.c.*) had before him only his own collections, which were somewhat inadequate [as also Wolf (1908) later complained] when he originally placed this taxon as a variety of *P. fruticosa* sensu lato (i.e. *P. arbuscula* D. Don) on account of the long hairs on the receptacle which obscure the achenes. *P. arbuscula*, however, clearly differs from *P. armerioides* in its stipules, the apices of which are largely or sometimes completely connate (see fig. 4B & C). Other differences include the leaves, which in *P. arbuscula* generally bear more than three leaflets, and habit, because even at its smallest, the latter remains a twiggy deciduous shrub. *P. biflora*, although resembling *P. armerioides* in its cushion habit, is clearly distinguishable in having leaves which bear 5 leaflets that are densely hairy on both surfaces and peduncles that can bear up to 3 flowers. *P. armerioides* is most closely akin to *P. articulata* Franch. in habit and in having trifoliate leaves, the leaflets of which, however, are articulated and deciduous (Fig. 4A); the latter species (Type: Yunnan, Likiang, 4500 m, Delavay s.n., iso. E) is restricted to Yunnan and Szechwan. Table 2 and fig. 4 summarise this and other differences.

TABLE 2

	<i>P. armerioides</i>	<i>P. articulata</i>
Older stems	covered with dead whole leaves	covered with dead broadly stipulate petioles
Leaflets	± persistent, not articulated at base	deciduous, articulated at base
	margin inrolled to midrib	margin narrowly inrolled
	petiolules c. 1 mm long	petiolules absent

### **Potentilla argyrophylla and *P. atrosanguinea***

Wolf (1908) in his monograph separated these two taxa as distinct species in contrast to Hooker's account (1878) in which they are treated as varieties of a single species, i.e. *P. argyrophylla* [Wall. ex] Lehm. (1831). In this Hooker was undoubtedly correct as the two differ only in flower colour, but he did not use the earliest name, i.e. *P. atrosanguinea* Lodd. (1823).

Although yellow-flowered plants are found further east than the red-flowered ones (as far as Sikkim), both are largely sympatric and varietal distinction is a justifiable status. The yellow-flowered variety should therefore be known as:



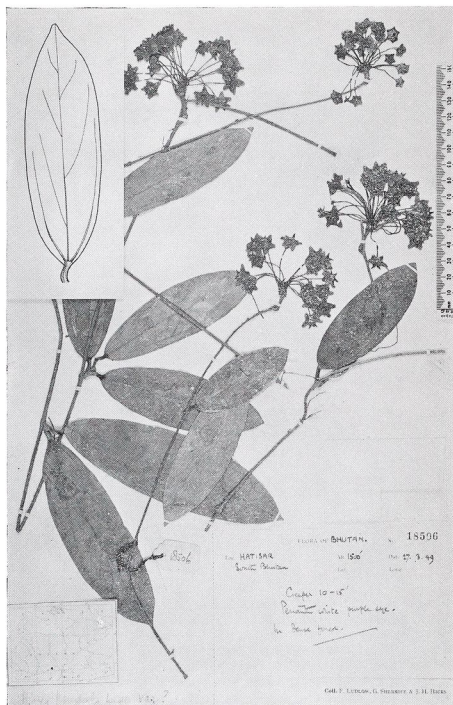


PLATE 4. Holotype of *Hoya bhutanica* Grierson & Long with inset drawing to illustrate leaf venation.